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ABSTRACT

Scholars working from various perspectives are beginning to define teaching as a decision-making process. Research shows that teachers are reflective and connect knowledge to situations through observation, understanding, analysis, interpretation, and decision-making. This paper provides empirical evidence to show the relationship of decision-making to the nature of teaching. The paper also presents a conceptual framework to help scholars and practitioners integrate various perspectives on teacher decision-making. Evidence is drawn from a teacher survey conducted by the Tucson (Arizona) Education Association. Teachers identified 25 responsibilities that needed to be integrated into their everyday schedules. Following an analysis of purposes and processes of teachers' actions, a responsibility matrix is constructed and discussed. Three features emerge: (1) teaching as an intensely active profession, (2) teachers' conflicting and ambiguous relationships with students (as managers, counselors, and craftspersons), and (3) teachers' isolation from administrators and each other. Various models attempting to capture the overall character of teaching processes are presented and discussed. The paper concludes by exploring alternatives for action in teacher decision-making processes. Effective teachers recognize "no best way" to teach in any given situation and seek innovative solutions to unanticipated problems. Included are 20 references. (MLH)

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Introduction

Scholars working from a variety of different perspectives are making use of a common metaphor for describing the work of teaching, namely, that teaching is fundamentally a process of decision-making, under circumstances of varying clarity or ambiguity as to ends and means. Mosston (1972), for example, calls teaching a "chain of decision-making" and claims that that is the "one statement that is true and universal, and can therefore serve as the base for understanding and description [of the activities of teachers.]"

Mosston uses the decision-making rubric to analyze how teachers might share (delegate) responsibility for making different decisions with their students. Other scholars have noted the intensity of the decision-making demands which classroom teaching imposes upon teachers and the effects of their having to make so many decisions in isolation from others (Jackson,1967; Lortie, 1975).

Hunter (1985) bases her "clinical theory of supervision" on the premise that "the teacher is a decision maker" and argues that "research-based cause-effect relationships" can "tell teachers what to consider before deciding what to do" even though "no one can tell teachers what to do" (1985, p. 57). Sergiovanni (1985) takes vigorous exception to Hunter's "mindscape", but stresses the complexity of the decision-making that "reflective practitioners" must engage in in the midst of constantly changing, unpredictable situations. Doyle (1985), summarizing the

work of several other scholars, notes that there is growing agreement that:

> teaching practice is not merely technical and rule driven, and teachers are not simply passive recipients who carry research-based practice to the classrooms. Rather, professional teachers are reflective, that is, they connect knowledge to situations through processes of observation, understanding, analysis, interpretation, and decision making (p. 12).

These observations, while allowing for the possibilities that different teaching situations might allow the teacher to be more or less certain about the decisions he or she "ought" to make, indicate that the "whys" and "hows" of teacher decision-making are likely to be subjects of increasing attention in the coming years.

This paper provides empirical evidence to illustrate why the decision-making rubric is essential to understanding the nature of teaching, as well as a conceptual framework that might help scholars and practitioners integrate various perspectives on teacher decision-making. The empirical evidence is drawn from a survey of teachers conducted by the Tucson (Arizona) Education Association (TEA) with technical assistance from the authors, as well as from written comments and follow-up group interviews that two of the authors conducted with teachers in that district in the Summer of 1985. The purpose of the TEA survey and overall project was to provide a detailed, documented description of the

work of teaching that might enhance the public's understanding and appreciation of the profession.[1]

The Responsibilities of Teachers

At the outset of their study, a committee of Tucson teachers tentatively identified thirty-seven sets of responsibilities, each defined in terms of types of activities, that committee members believed are typically performed by classroom teachers. Survey responses confirm that most teachers (more than half) perform all but nine of these responsibilities on at least a weekly basis (see Chart 1, below). Most teachers, in fact, perform most of these responsibilities on a daily basis.[2]

The vast majority of teachers (over eighty percent) report

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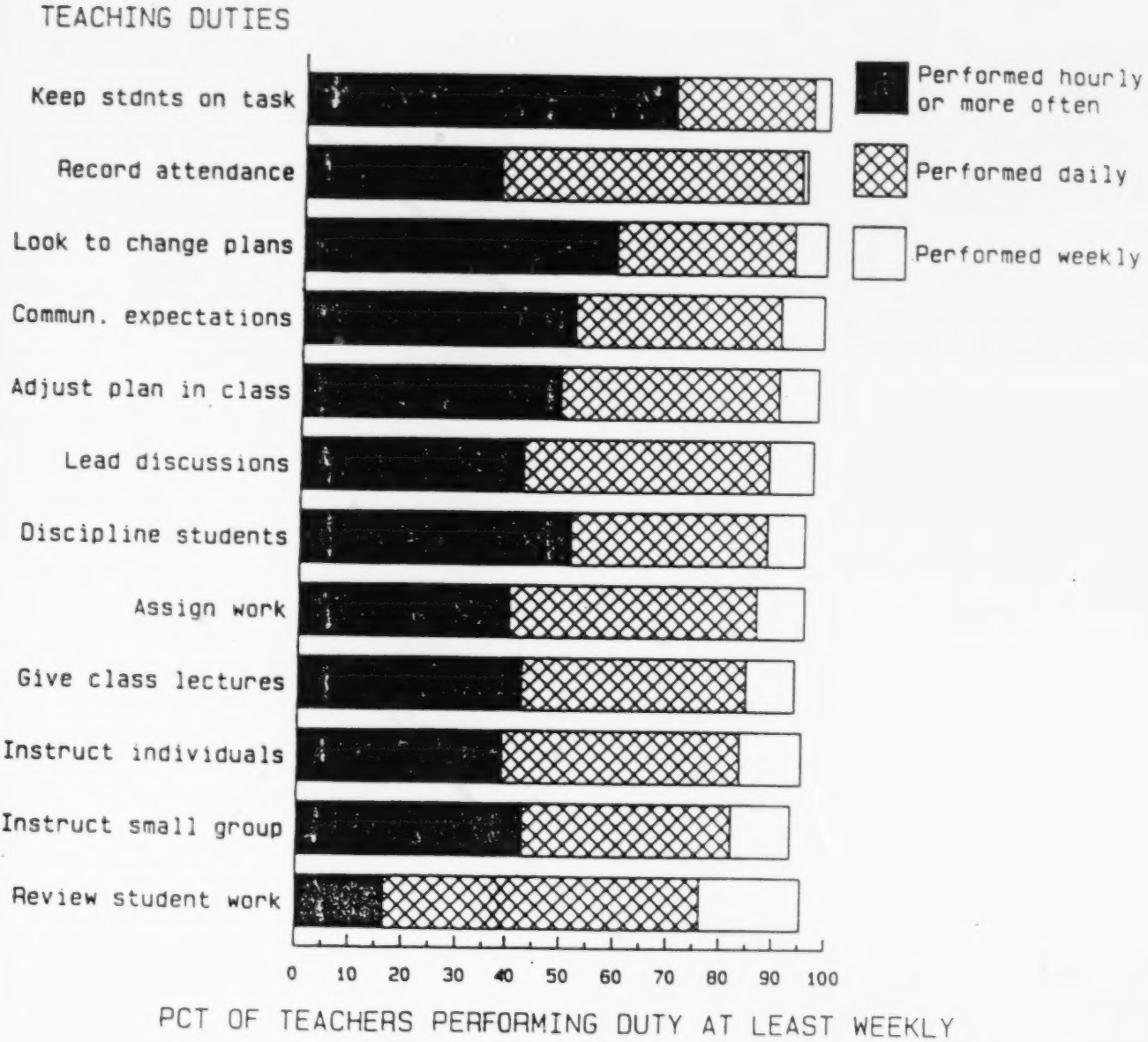
1 The TEA distributed copies of its survey to all teachers who had responsibility for teaching groups of students; 1187 completed surveys were returned, representing just over fifty percent of the District's teaching staff. For a detailed report on the Tucson study, see "From the Front of the Classroom: A Study of the Work of Teachers," Ithaca, N.Y.: Organizational Analysis and Practice, Inc., 1985.

2 The teacher survey asked respondents whether they performed each responsibility (a) hourly or more often, (b) daily, (c) weekly, or (d) monthly or less often. Although distinctions between hourly and daily responses are provided in Chart 1, those distinctions were heavily influenced by the school level of the respondents answering the question. That is, elementary school teachers, who typically have all-day responsibility for a particular class, were more likely to report that they have "daily" responsibility for many duties that junior and senior high teachers (with several different classes) perform "hourly". Since the emphasis in this paper is on features that all or most teachers have in common, we will discuss duties performed "hourly" or "daily" as duties performed "daily or more often".

CHART 1

Teachers perform many duties and perform most of them frequently:



Teachers perform many duties
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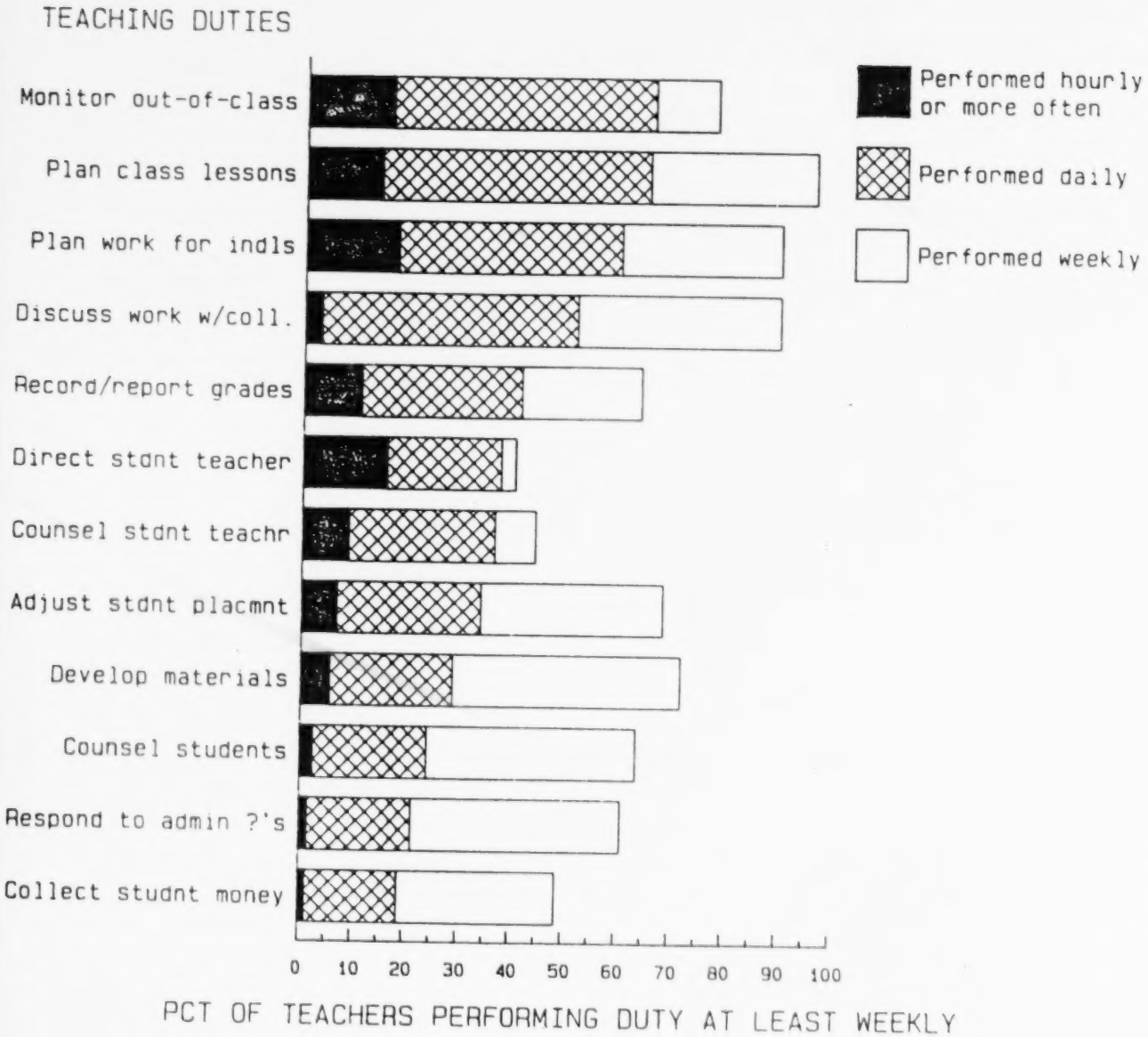

Teachers perform many duties
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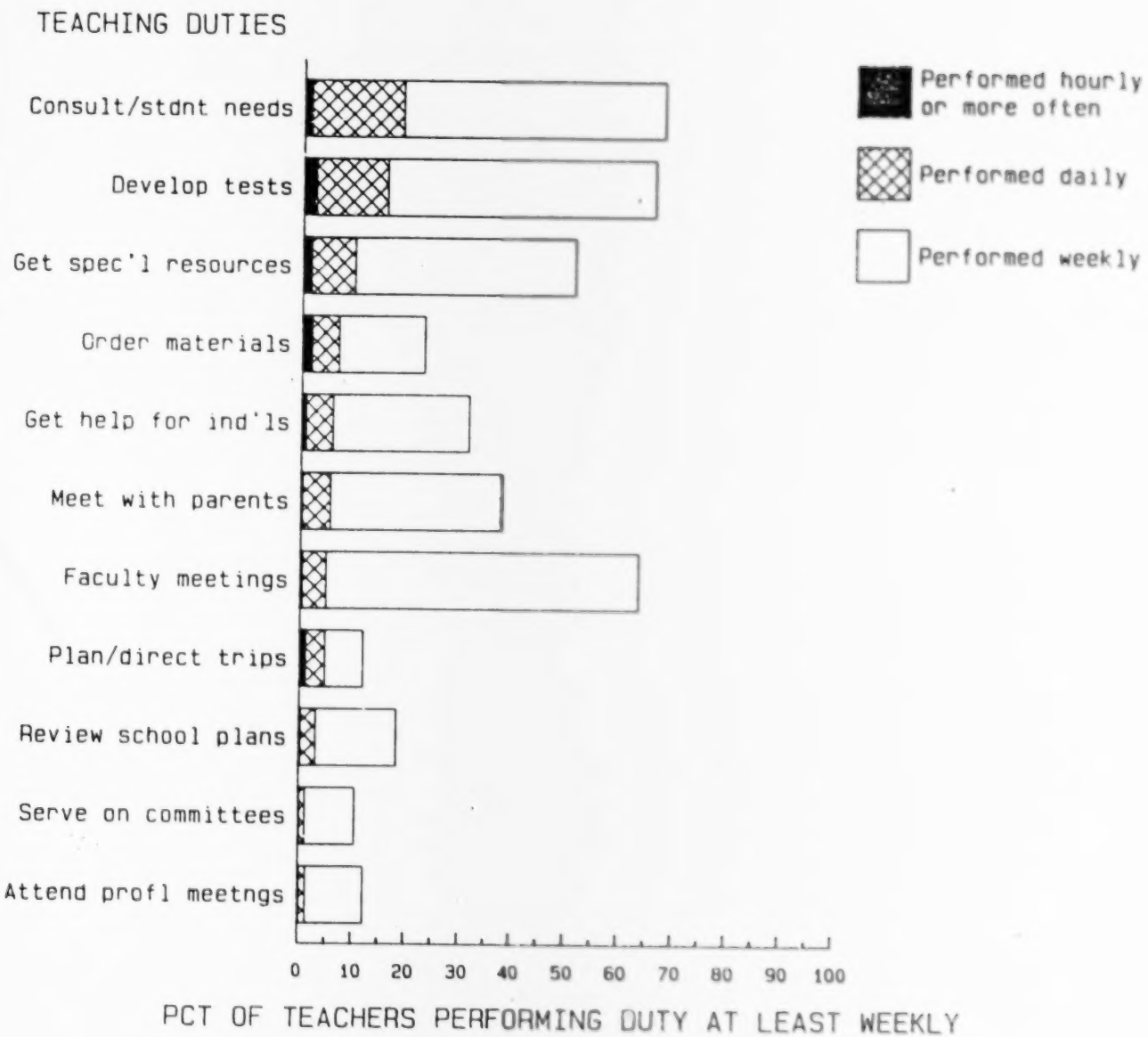

that they perform the following eleven responsibilities either daily or more often (listed in order of percentage):

- o Observing and directing student behavior to keep students "on task" and to identify and avoid potential discipline problems;
- o Recording and reporting classroom attendance;
- o Observing class, group and individual behavior and progress in order to identify when plans might need to be changed;
- o Communicating expectations to students concerning instructional goals and objectives, quality and amount of work, and behavior and discipline;
- o Actually adjusting class, group or individual plans while class is still in session (i.e., making "mid-stream" changes);
- o Leading class discussions and demonstrations;
- o Administering in-class discipline and/or referring students to others for discipline;
- o Assigning in-class work and homework to individuals, groups and whole classes;
- o Lecturing to a class as a whole (for purposes of instruction);
- o Instructing or reviewing work with individual students for purposes of instruction, while other students work independently or in groups; and
- o Instructing groups of students, using a variety of techniques, while other students work independently or in groups.

A somewhat smaller proportion of teachers (but still a majority) perform the following five additional responsibilities daily or more often:

- o Reviewing tests, homework and other student assignments, for purposes of identifying progress, problems, and special needs;

- o Monitoring and supervising student behavior outside of the classroom, for example, in hallways, cafeterias or on the playground;
- o Planning, developing and scheduling whole class and group lessons, activities and assignments;
- o Planning activities and assignments for individual students, adjusting them to fit plans for the class and groups; and
- o Discussing work with colleagues, for purposes of discussing subject matter, student needs, and each other's instructional plans and teaching techniques.

With the exception of monitoring and supervising out-of-classroom behavior (a responsibility performed more frequently by elementary and junior high school teachers than by high school teachers), virtually all teachers, at all school levels, report that they perform each and every one of the preceding sixteen responsibilities at least weekly.

Nine other responsibilities are performed weekly or more often by at least fifty percent of the teachers responding to the survey:

- o Recording and reporting grades;
- o Placing and adjusting placement of individual students at appropriate curriculum levels;
- o Developing course outlines and special instructional materials not already available;
- o Counseling with individual students;
- o Responding orally or in writing to special requests for information from administrators or other school officials;
- o Consulting with specialists and colleagues to identify and analyze the special needs of individual students;
- o Developing tests;
- o Attending faculty meetings; and

o Planning and arranging for special resources for classroom instruction.

The first point that deserves attention about this list of responsibilities is the sheer number of responsibilities that all or most teachers perform on a regular basis: sixteen performed daily or more often and another nine at least weekly.

These figures, in fact, tend to understate the volume and intensity of a teacher's performance responsibilities in three different ways. First, the sixteen daily responsibilities and nine weekly responsibilities listed above are based on aggregate percentages (more than fifty percent falling in one or the other category.) As the bar segments in Chart 1 indicate, large numbers of teachers report that they perform many of the responsibilities we have listed as "daily" on an hourly basis, and many report that they perform what we have labelled "weekly" responsibilities on a daily basis.

Second, large numbers of teachers (but less than a majority) indicate that they perform several duties not listed in either category on a weekly, daily, or even hourly basis, including directing the work of student teachers; scheduling and conducting meetings with parents; arranging with other school or district personnel for special support or placements for students with special needs; and ordering instructional materials and supplies for regular classroom use. In fact, of the 37 responsibilities listed on the teacher survey, only five are performed on a weekly

or more frequent basis by fewer than twenty percent of all teachers.[3]

The foregoing list of responsibilities also understates the volume and intensity of teachers' responsibilities by collapsing into short statements responsibilities that take many different forms, sometimes misrepresenting the real character of those responsibilities in the process. By far the largest number of comments submitted by teachers in response to the survey's open-ended questions (152 comments) addressed the variety of ways in which teachers counsel students, provide them with "nurturing", serve as surrogate parents, psychologists and social workers, and otherwise address the needs and special problems of individual students. Respondents properly noted that by collapsing all such activities under the single category of "counseling individual students" the survey data seriously understate what, for many teachers, is one of their most important, most difficult and most time-consuming responsibilities.

Significant but smaller numbers of respondents offered similar comments about how the survey understated the nature of teachers' relationships with parents, their dealings with the

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3 Those responsibilities (and the percentages of teachers performing them weekly or more often) are as follows: evaluating district or school plans, programs and curricula, for the purposes of communicating problems and personal recommendations for changes to appropriate officials (19 percent); attending professional meetings, conferences or training workshops (12); directing and supervising field trips and other out-of-class instructional activities (12); and serving on or chairing committees to develop or revise plans, programs, curricula or selection of textbooks (11 and 5 percent, respectively).

community, the burden of their administrative paperwork and the variety of special assignments they frequently take on. Since survey respondents were not asked about these activities, or were not asked about them in sufficient detail, there is no way of documenting here just how many teachers perform them or how often they do so. But again, these comments indicate that our list of sixteen "daily" activities and nine additional "weekly" activities represents a conservative statement of the volume and intensity of a teacher's responsibilities.

Even without further analysis, these data indicate one reason why it would be so important to conceptualize teaching as a decision-making process. One of the overarching responsibilities of teaching is the management of all those separate responsibilities. The more responsibilities a person performs, and the more often he or she performs them, the less likely it is that anyone but that person can make what are ultimately the most critical decisions about that job: deciding how to allocate time among different responsibilities, deciding when to stop "doing" one thing and start "doing" another, deciding when something needs to be "done" in the first instance, deciding how to achieve as many different objectives at once, and deciding what to do when two or more responsibilities appear to make inconsistent or even conflicting demands.

Roles and Functions

It was not until after we began reviewing survey responses, had analyzed written responses to open-ended questions, and had analyzed the comments of participants in our follow-up discussion that we recognized that the taxonomy of teaching responsibilities we had planned on using to analyze these survey data[4] would not be adequate. That taxonomy combined -- and failed to distinguish between -- two different sets of considerations. Some of the categories basically referred to the purposes that teachers' actions are meant to serve -- to the kinds of goals or outcomes they are expected (or intend) to pursue -- while other categories focused more on the processes they engage in when performing their jobs.

Four kinds of purposes seemed to be present:

- o Instruction (increasing the academic skills and achievement of students)
- o Counseling (identifying and addressing the particular needs and problems of individual students, not necessarily in the context of formal counseling "sessions")
- o Classroom management (organizing and maintaining a physical and interpersonal environment conducive to instruction and counseling)
- o School management (performing responsibilities that are meant to contribute to the orderly and/or effective operation of the school as a whole)

Three general processes were present:

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4 We planned to break survey responses into the following categories: instruction, instructional planning, classroom management, diagnosis and counseling, and administrative responsibilities.

- o Planning (including identifying problems, needs or objectives and deciding how to address them)
- o Taking action ("carrying out" a plan)
- o Evaluating (assessing the effects of some action or set of actions, the extent of progress toward some goal or objective, and the nature of any obstacles that might have impeded such progress)

Using the distinction between purposes and processes, it became possible to draw a more comprehensive picture of teaching from the survey data. It became relatively easy, for example, to indicate that some evaluative ("diagnostic") activities might serve a counseling purpose, while others might serve instructional, classroom management or school management purposes. It became possible to draw distinctions between school management responsibilities that merely involve the execution of plans or procedures established by others (i.e., "acting") and responsibilities that involve evaluating existing school policies and programs or planning new ones. It became possible, in short, to define a <u>matrix</u> of teaching responsibilities, representing the (possible) planning, acting and evaluating responsibilities of teachers in each of the four purpose-areas outlined above (see Table 1, below).

Table 1

RESPONSIBILITY MATRIX

	Processes		
Purposes	PLANNING	ACTING	EVALUATING
INSTRUCTION	Instructional Planning	Instructional Action	Instructional Evaluation
COUNSELING	Counseling Planning	Counseling Action	Counseling Evaluation
CLASSROOM MANAGEMENT	Class Management Planning	Class Management Action	Class Management Evaluation
SCHOOL MANAGEMENT	School Management Planning	School Management Action	School Management Evaluation

The twelve cells of this matrix distinguish possible areas of teaching responsibility. Whether Tucson teachers actually do perform responsibilities in each and every area is an empirical question that we decided to try to answer with data from our survey, by assigning the activity in each survey item to the matrix cell that most nearly reflected the purpose and process of that activity.[5] The picture presented in Chart 2

5 Since we had not had such a matrix in mind when we constructed the survey, we recognized that we might have "lumped" several activities under a single survey item when in fact they belonged in different cells of the matrix. We also recognized

(next page) represents the results of these efforts. The bars beside each survey item, representing the proportions of teachers who say they perform each activity hourly or more often, daily, or weekly, are taken from Chart 1.[6]

There are three features about the information in Chart 2 that illustrate particular points about teacher decision-making. The most obvious feature is how much teaching activity is concentrated in the center column. Teaching is an intensely active profession. Although teachers are individually responsible for planning most of their own activities, and deal with large amounts of information that must be assimilated and analyzed, they do not have the luxury of spending large amounts of time in reflection, either in planning or evaluation. That point is underscored when it is noted that the most prominent items in the evaluating and planning columns represent activities that occur while class is in session -- observing class and

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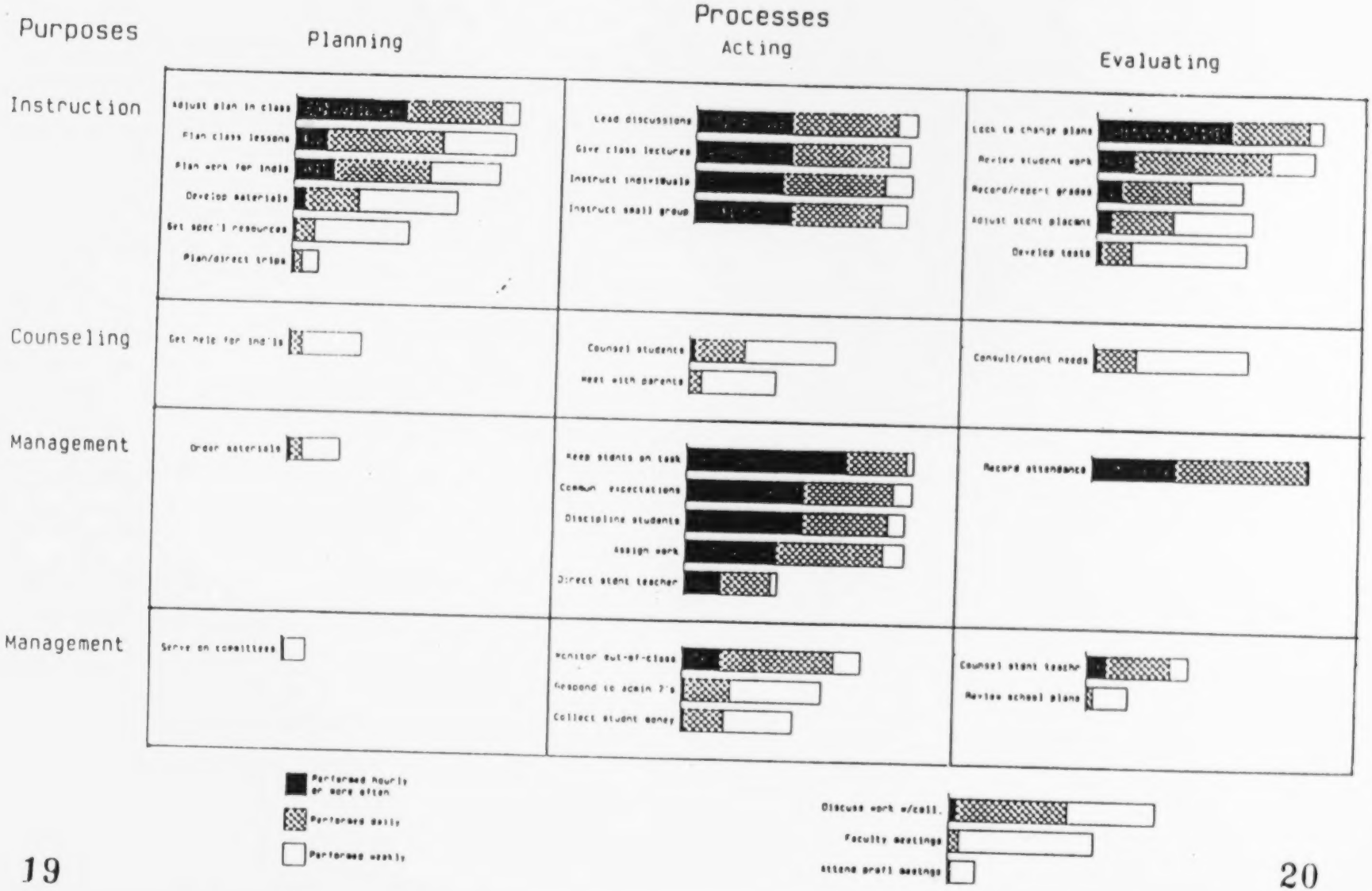
that a filled-in matrix would not present a complete picture of teaching responsibilities, because some responsibilities (particularly those having to do with student counseling and parental contact) had been inadequately covered on the original survey. But we still wanted to know whether filling in such a matrix would tell us anything that our original lists and categories of responsibilities did not.

In three cases (discussing work with colleagues, attending faculty meetings, and attending professional meetings), the purpose or process reflected in a survey item was so uncertain that we decided not to assign those items to any cell. In most cases, however, the primary purpose and process of each item were relatively clear.

6 All bar-lengths in Chart 2 are to the same scale. For reference purposes, the complete bars for the items "look to change plans" (under instruction/evaluation) and "keep students on task" (under classroom management/acting) both represent 99 percent of all survey respondents.

CHART 2

Teaching Duties Vary by Purpose and Process



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individual behavior in order to identify needed changes in plans, and actually adjusting plans while in the midst of implementing them.

The chart also helps us appreciate why teachers would not report that they devote large amounts of time to activities that are specifically and exclusively devoted to "counseling students" -- but why so many would object to the wording of a survey item that implies that counseling is <u>confined</u> to those occasions when a teacher sits down with an individual student and provides "counseling". Teaching, in most cases, occurs in a <u>group</u> setting. Most of a teacher's explicit planning and acting must necessarily focus on his or her objectives for a group of students, generally concentrating on instructional purposes. But a lot of individual counseling occurs <u>within the context</u> of pursuing instructional objectives in that group setting.

One teacher noted in a written comment, "The survey noted counseling in terms of scheduling, coordinating and conducting meetings with individual students ... frankly, my job entails continuous, on-the-spot modeling and intensive counseling of students." Another explained why she could not afford to ignore the special needs of individual students, even if her overall plans were aimed at the group:

> [In most occupations, managers are] supposed to stay as far away from their subordinates' private lives as possible. We don't have that luxury. If a child spends all day shivering because her parents don't have enough money to buy her a sweater, or if she can't see the blackboard because of poor eyesight, or if she's worried sick about whether she's pregnant or not, she isn't going to learn much math. So you spend time

> sending notes home to parents to collect used sweaters, you keep after parents to get their child glasses, and you make time to talk with the girl who's worried about maybe being pregnant. We take on those roles because we're not going to get any teaching done unless we do.

Teachers' relationships with students are also complicated by the fact that the goals or purposes they are meant to serve are generally ambiguous and sometimes conflicting (Metz, 1978; McPherson, 1972; Lortie, 1975; Lampert, 1985). Teachers are expected to promote equality and excellence, teach specific bodies of subject matter and promote acquisition of learning and social skills, respond to particular students' particular needs, foster independence and creativity, and "maintain standards" and discipline. As a consequence, their relationships with students are sometimes that of manager to subordinates, sometimes that of counselor to client, and sometimes that of craftsperson to "material": they work over, with, for and "on" their students, sometimes as individuals and sometimes as a group.

The third feature of our survey data concerns the isolation of individual teachers from administrators and from each other. Most teachers spend little time with people outside their immediate classrooms. Of the sixteen duties or activities listed on our survey that teachers normally perform daily or more often, only two typically involve any contact with adults. One of those two activities is a routine administrative procedure (recording and reporting attendance) and the other is typically hurried and informal (discussing work with colleagues). Nearly half of the

teachers responding to our survey (48 percent) report that they do not discuss work with colleagues on even a daily basis. One out of ten report that such conversations are more likely to occur monthly or less often rather than weekly.

Most of the remaining twenty responsibilities covered by our survey involve at least occasional contact with other adults, but of the nine performed on at least a weekly basis by at least half the teachers, only one necessarily requires a substantive discussion about work: consulting with specialists and colleagues to identify the special needs of individual students. The others are generally routine and administrative or else involve substantive work discussions with others on only a haphazard basis.[7]

The other side of this same coin is that the two survey items that are most likely to involve participation in planning and evaluating school policies and programs -- reviewing and making recommendations on policies and programs, and serving on committees -- are two of the activities performed least often.

There are at least three different ways in which this relative isolation from other school system members affects teacher decision-making: First, it means that teachers -- in most schools -- have relatively little responsibility for

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7 Recording and reporting grades; responding to administrative requests for information; adjusting student placements; developing course materials; counseling students; developing tests; attending faculty meetings; and planning and arranging for special resources for classroom instruction.

substantive policy-making outside their immediate classrooms. Most of their activity outside their immediate classrooms involves carrying out decisions or procedures established by others. Second, it means that teachers receive comparatively little direction from their administrative superiors. Most of their complaints about "bureaucratic pressures" focus on administrative paperwork and chores they consider unnecessary distractions from their classroom efforts, and not on the extent to which administrators actually direct -- or try to direct -- what they do in the classroom. Third, the isolation of teachers means that they are generally unable to draw on each other as resources in fulfilling their individual responsibilities. One of the sharpest contrasts between teaching and other occupations is the extent to which teachers must rely upon their own resources in carrying out their jobs.

The volume and frequency of teachers' responsibilities, their intensely active orientation, their variety of relationships with students and their relative isolation from administrators and peers all serve to illustrate how much school systems rely upon individual teachers to integrate their various responsibilities. Several of our survey respondents indicated that our lists of responsibilities had "missed" what is, in fact, the most distinctive feature of teaching:

> Teaching is more than the sum of its parts. Coordinating human and material resources as well as the resources of the learner is a task that cannot be broken down to be analyzed.

> The orchestration of teaching is unique. That's the big difference [between teaching and most other occupations.] We have to be masters of a three-ring circus.
>
> This survey really has little to do with the process of teaching. It deals with a lot of the whats and not many hows.
>
> The survey oversimplifies the time, acquisition of knowledge, continuous effort expended, and development of expertise, flexibility, "on feet" adjusting of plans and ideas, utilization of prior knowledge, reconstruings of content, and intensity of inter-personal contact with 160 students and the adult faculty and staff.
>
> The questionnaire states everything neatly. Nowhere does it indicate the level of stress and degree of frustration under which the above are carried out or attempted. Nor does it indicate student attitude, level of endeavor, amount of time spent dealing with behavior problems, lack of effective means to deal with disruptive students, etc. The questionnaire gives me the feeling that all of the duties and responsibilities are carried out in a nice business-like fashion and problems identified and satisfactory provision made for their solution. [It] does not reflect reality in that the same problems return daily and little progress seems to be made in spite of one's best efforts.

Observers have generated a variety of models that purport to "capture" the overall character of teaching processes. Some have chosen to describe teaching in terms of the technical application of what is known from research on "effective" teaching to solve classroom problems (Gage, 1972; Slavin, 1984). In effect, the teacher is assumed to ignore what is indeterminate or uncertain in his or her environment and to concentrate on what is known, with "effectiveness" defined largely in terms of student acquisition of prescribed bodies of information or knowledge.

Other observers characterize the teacher as one who makes choices between dichotomous alternatives, generally related to conflicting objectives and purposes (Metz, 1978). Such a perspective underscores the ambiguity and conflict among teaching goals, but tends to assume that the situations which teachers face and the potential strategies open to them are themselves relatively clear.

Still others tend to emphasize the teacher as victim, managing the conflicts generated by conflicting expectations but generally unable to do much more than "muddle through". Any notion of effective teaching is precluded by such a picture, since the determination of effectiveness requires some previously-established, socially-defined resolution of contradictory objectives (McPherson, 1972).

A fourth perspective suggests that the teacher is a dilemma-manager (Lampert, 1985). The teacher, according to such a perspective, is generally unable to "finally" resolve the contradictory pressures of teaching expectations, because the "solution" to one problem would generate its own problems and compromise other expectations. But the teacher is nevertheless able to use the tension between multiple objectives to produce creative, if only temporary, "solutions" which minimize the extent to which any one objective is compromised and which maximize possibilities for making at least some progress toward several objectives at once.

One point that is noteworthy about these different approaches is that they all imply some orientation toward the goals or purposes of teaching. The first (technical application) perspective accepts as given the measures of "effectiveness" employed in current research: the ultimate measures, defined in terms of student acquisition of certain knowledge, generally as reflected in standardized tests, and the immediate measures, defined in terms of particular instructional and managerial techniques or practices that have been shown to have a statistically significant effect on the outcome measures used. The other three perspectives tend to highlight the variety of purposes teachers are "supposed" to promote. The second (choice-maker) perspective tends to emphasize the conflicts between goals that focus on group performance (generally instructional) and goals that emphasize attention to the needs of individual students (what we have loosely labelled a "counseling" focus, since they always entail the potential for working separately with individual students on special needs or problems.) The third (victim) perspective tends to emphasize conflicts among instructional objectives (e.g., teaching "basic" and "higher order" skills), with emphasis on managerial or counseling objectives only insofar as they may be addressed by public policies or external "pressure". The fourth (dilemma-resolver) perspective tends to emphasize the conflicts that emerge from the process of pursuing instructional objectives in a social setting, when strategies

designed to pursue those objectives tend to run afoul of managerial or counseling objectives.

But which perspective is "accurate"? Clearly, to ask the question is to indicate how limiting each perspective is. Teaching sometimes requires teachers to make "unfortunate" but necessary choices between contradictory outcomes. Having made such choices -- or having had such choices externally-prescribed -- teaching sometimes involves the technical application of recognized strategies or techniques to clearly-defined problems, to produce desired outcomes. It sometimes places teachers in hopeless dilemmas where the only choices are "burn-out" or resignation (in either sense of the term). But it often can afford teachers opportunities to creatively manage and occasionally resolve dilemmas as well.

We take limited exception, therefore, with the teacher who suggested that teaching cannot "be broken down to be analyzed". It is useful to break teaching into its "parts", distinguishing various purposes and processes, if only to illustrate how important it is to understand how teachers go about putting those "parts" back together.

Our project in Tucson provided few clues as to how teachers go about doing so, but research on teaching skills and the processes of "reflective practice" are beginning to generate some intriguing leads.

Integration, Adaptation and Innovation[8]

Most discussions of teaching skills fall into one of two categories: discussions of the skills or behaviors that have been identified by researchers as constituting "effective teaching practices", and discussions that refer to the "art" of teaching, "intuition", "knowing more than I can say," "tacit knowing," "thinking on your feet," "keeping your wits about you," "developing a feel for a situation," or recognizing when something does or doesn't "fit" or "feel right". The first perspective, standing alone, implies that teaching is a relatively straightforward process of applying well-established technical principles to particular situations; the second, by itself, implies that teaching is an intuitive, potentially-creative -- but essentially un-analyzable -- process.

One of the most important developments in the understanding of the decision-making processes and skills involved in "professional practice" is research that has begun to establish relationships between such seemingly-incompatible bodies of knowledge (Schon, 1983). Technically "rational" models that characterize "professional decision-making" as the "application of established knowledge and techniques to recurrent events" are increasingly being recognized as inadequate, even in such well-established professions as medicine and law (Schon, 1983).

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8 The "leads" discussed in this section are discussed in more detail in our report, "Foundations for a System of Career-Development for Teachers: Criteria and Standards for Advancement," a paper commissioned by the Research Division of the National Education Association.

The "skillful" practitioner is now being recognized as one who is capable of using "established" theories and knowledge of demonstrated apparent cause-effect relationships as tools for analyzing the unique situations presented in most "real-life" settings.

The most obvious way in which "technical knowledge" can benefit the "real-life" practitioner is by providing alternatives for action, depending upon the specific situations encountered in practice. A person cannot be said to actually "decide" upon a course of action, if he or she has only one approach available to respond to situations that are only roughly comparable from one time to the next. To the extent that alternative theories are available to the practitioner to explain different situations -- or to analyze similar situations from the vantage point of different goals or objectives -- practitioners who have ready access to such theories can employ them as devices for considering the possible consequences of alternative actions.

With the exception of recent research on selected aspects of teaching practice, such as "signal systems" in classrooms (Kounin and Gump, 1984) and the relationships between "academic work" and "activity management" (Doyle and Carter, 1984), there is relatively little theory directly tailored to teaching practice. Nevertheless, more general theories drawn from fields like developmental psychology and social psychology do provide practitioners with possible alternative frames of reference for analyzing teaching and learning situations. What teachers tend

to rely upon more heavily, however, are repertoires of specific techniques that serve the same general function as theoretical propositions: they provide choices for the practitioner, not only to use, but to structure his or her consideration of alternative courses of action (Nemser, 1983). The "skillful" practitioner is one who has such alternatives seemingly "at his or her fingertips", enabling considered choices of action. Some of the so-called "effective teaching practices" represent characterizations of just these sorts of quasi-theories.

Schon's (1984) analyses of the decision-making processes employed by "reflective practitioners" indicate a second function served by the "technical" knowledge provided by research and theory and what is sometimes called the "practical" knowledge gained from experience. Both sources of knowledge provide warnings or advance signals to practitioners of problems they can expect to confront if they choose particular courses of action. The decision-making of practitioners in "real life" situations often focuses on anticipating and (if possible) avoiding the adverse consequences of possible courses of action. Planning activities that appear illogical based on "pure" decision-making models -- for example, the common practice of first considering possible learning activities and then establishing goals for a class session based on the activities considered (Mintz, 1979; McCutcheon, 1980; Clark and Yinger, 1978) -- can be seen to be quite logical, when alternative techniques are viewed as devices for anticipating obstacles and identifying the best way around

them. Thinking that appears fuzzy and "intuitive" -- when decision-making is defined solely in terms of choosing the "right" course of action to "achieve a particular objective" -- can be seen to be quite sophisticated and "skillful", when defined in terms of evaluating the appropriate boundaries to action (i.e., choosing a course of action that is most likely to avoid serious problems and promote as many possible objectives at once.)

"Practical knowledge", in this sense, is more likely to be proscriptive than prescriptive. It is no less "professional" than the theoretical knowledge that charts a course from a "given" set of assumptions to a single "desired outcome". Most of the knowledge provided by most research on "effective teaching", we would argue, represents a catalogue of such "proscriptive knowledge", providing (tentative) "don'ts" for teaching practice -- but very few "do's". This, we think, is the sense in which Hunter (1985) argues that her clinical "theory" of instruction provides a frame of reference for considering choices of action, but cannot be employed to direct action. In the sense that Hunter's research provides teachers with a catalogue of likely (negative) consequences of different courses of action, it provides useful guideposts for practices that teachers ought to consider avoiding.

It is important to recognize, however, that the research on "effective teaching practices" has invariably employed as its dependent variable some test of student mastery of certain basic

skills or a preidentified body of information. The research, in other words, is most sensitive to teaching practices that might impede the attainment of a limited category of instructional objectives. That doesn't mean that those same practices might not represent obstacles to the attainment of other objectives -- indeed, some of them are more-immediately relevant to the maintenance of classroom discipline than they are to the achievement of instructional goals -- but it cannot be assumed that they represent obstacles to all possible objectives.

What the research on such practices does provide is a catalogue of apparent tendencies, relating certain practices and certain outcomes. Its value, properly employed, is that it provides a set of short-hand tools -- what might be called "intuitive knowledge", if it weren't written down -- for anticipating the possible (negative) consequences of certain teaching behaviors both "horizontally" and "vertically" within the framework of our responsibilities matrix. That is, they help the practitioner anticipate the possible impact of certain teaching decisions on other functional steps of the decision-making process and on at least certain role-related outcomes. They help the practitioner integrate his or her decision-making over time and across objectives.

Adherence to a single model of what "ought" to be happening in the classroom can only serve to tell the teacher when something may be going wrong; having several models "at one's fingertips" -- whether they be formal theories, lists of "principles",

or simply alternative techniques -- allows the teacher to engage in what Shulman and Carey (1984) call "pedogogical triangulation", planning and evaluating while still "implementing" decisions, and thereby pacing themselves and their students' activities most effectively.

As Shulman and Carey (1984), Doyle (1985), Nemser (1983) and even Hunter (1985) point out, "established" knowledge of apparent cause-effect relationships can limit creativity and discourage the development of a teacher's own problem-solving abilities, if that knowledge is treated as a rigid body of "rules to follow" in practice. The teacher who has only a limited repertoire of teaching techniques to draw upon not only is unable to adjust well to specific and unanticipated classroom situations, but is limited in his or her ability to anticipate such situations and to reflect upon his or her decision-making-in-action.

It is in this sense that we can appreciate Lampert's (1985) comments about the creative reflection made possible by recognition of the dilemmas of teaching practice. The teacher who appreciates that there is "no one best way" to teach in any given situation -- and who can anticipate and evaluate the problems that each "way" might entail -- is prompted to search for innovative solutions that might stear clear of recognized obstacles and serve several purposes at once -- avoiding obstacles and serving several purposes better than previously-used solutions may have done. Experimentation and innovation are not merely discrete activities that might be expected of the "skill-

ful" practitioner; they are part and parcel of "reflective practice" itself (Schon, 1983). As one teacher in our Tucson study noted,

> Teaching isn't just [a matter of] giving kids information or help. It's important that they learn how to find answers for themselves. That's one reason why it's good for us to experiment and try new things, even if we fall on our faces sometimes. We're teaching them that learning is searching and sometimes searching means making mistakes.

Implications

There are close parallels between these observations on the relationships between reflective decision-making and innovation and the observations of those researchers who have studied the characteristics of "effective schools" and programs of school improvement. Such schools and programs are characterized by what Little (1982) calls a "norm of continuous improvement." Such systems, she notes, treat "analysis, evaluation and experimentation ... as tools of the profession, ... [and] properly the work of the teacher" (p. 339). As Nemser (1983) suggests, the "expectation that teachers can grow and improve in their work" is so critical to school improvement, because the same expectation is so important to the work of teaching itself. A teacher's ability to analyze the limitations of his or her own existing knowledge -- and his or her willingness and ability to approach new situations as opportunities to experiment and improve -- are the same "capacities" that teachers need in their day-to-day decision-making.

Research on the nature of teacher decision-making can play an important role in enhancing the public's appreciation -- and teachers' own appreciation -- of the work that teachers perform. It can highlight processes and skills (like integration, adaptation and innovation) that have hitherto been ignored or given slight attention in training and evaluation programs. It can possibly provide the bases for new approaches to "career ladders" or career development in teaching. It can provide researchers and policy-makers with concepts that serve to highlight obstacles to effective decision-making (such as isolation from peers or inadequate resources) and thereby provide insights into how the job of teaching and staffing alignments might be designed to promote the conditions necessary for effective practice. If the data and conceptual "leads" offered in this paper either convince or confirm for readers the value of pursuing the "hows" of teacher decision-making, the paper will have served its purpose.[9]

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9 The authors and their colleagues at OAP discuss these implications in greater depth in the two reports cited in notes 1 and 8 above, as well as in several other papers being presented at this AERA meeting, including: Sharon C. Conley and Joseph B. Shedd, "Promotions, Career Ladders and Labor-Management Cooperation;" Joseph B. Shedd and Rose M. Malanowski, "Criteria and Standards for Teacher Promotion;" Samuel B. Bacharach, "Educational Reform: A Managerial Agenda;" Stephen M. Mitchell, "Job Design in Schools;" and Sharon C. Conley, "Performance Appraisal and Career Development Systems for Teachers."

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